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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,616	05/19/2005	Shahin Farahani	51579/A599	7514
23363 7590 08/21/2007 CHRISTIE, PARKER & HALE, LLP PO BOX 7068 PASADENA, CA 91109-7068			EXAMINER JANAKIRAMAN, NITHYA	
			ART UNIT 2123	PAPER NUMBER
			MAIL DATE 08/21/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/535,616	<b>Applicant(s)</b> FARAHANI ET AL.	
	<b>Examiner</b> Nithya Janakiraman	<b>Art Unit</b> 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This action is in response to the submission filed on 06/14/2007. Claims 1-16 are presented for examination.

#### ***Claim Objections***

1. Claims 1 and 11 are objected to because of the following informalities: the phrases “using a computer of simulating” and “using a computer of modeling” should be amended to recite “for modeling” and “for simulating”. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 14 and 15 are rejected under 35 U.S.C. 101 as being non-statutory.
3. Claim 14 recites “a system” containing “signal generator blocks”, “RF signal processing blocks”, and “conversion blocks”. Giving the claims a broad reasonable interpretation, these limitations are broad enough to encompass a software “system” with software components. Claim 14 is therefore held as software *per se*. Claim 15 is rejected by virtue of its dependency.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by "High Speed Signal Processing with Tapped Dispersive SAW based Delay Lines", by Brandl (hereinafter Brandl).

5. Regarding independent claim 1, Brandl teaches:

A method using a computer of simulating radio frequency signal processing circuitry (see part III, "theoretical model for the chirp transceiver"), comprising:

forming a compressed vector based equivalent representation of a signal (see figure 5, "Chirp compressor") in a wireless communication system (see Introduction);

performing processing on the compressed vector based equivalent representation to simulate operation of the radio frequency processing circuitry on the radio frequency signal, the

processing forming a processed compressed vector based equivalent of the radio frequency signal (see page 173, "the decision unit generates the estimated data signal"); and

converting the processed compressed vector based equivalent of the signal to a representation of the radio frequency signal as operated on by the radio frequency processing circuitry (see figure 5, "Decision Unit").

6. Regarding claim 2, Brandl teaches:

The method of claim 1 wherein information in the compressed vector based equivalent of the signal is limited to information of the radio frequency signal in frequency bands of interest (see Introduction, "...scientific and medical bands, at 2.45 and 5.8 GHz...").

7. Regarding claim 3, Brandl teaches:

The method of claim 1 wherein the processing simulates non-linear operations (see e.g. equation 3.1).

8. Regarding claim 4, Brandl teaches:

The method of claim 1 wherein the processing is compressed vector based processing (see Figure 5, "Chirp Compressor").

9. Regarding claim 5, Brandl teaches:

The method of claim 1 wherein the processing includes linear time invariant processing (see Part II, "passive, linear, time invariant") and non-linear time invariant processing (see e.g. equation 3.1).

10. Regarding claim 6, Brandl teaches:

The method of claim 1 wherein the processing is frequency domain processing (see Part II, "...frequency domain are coupled by the dispersion coefficient...").

11. Regarding claim 7, Brandl teaches:

The method of claim 1 wherein the processing is time domain processing (see e.g. equation 3.1).

12. Regarding claim 8, Brandl teaches:

The method of claim 1 wherein the processing simulates RF receiver front-end processing (see Introduction, "radio transmission utilizing chirp signals", Part II, "six parallel paths with power detectors and RF switches").

13. Regarding claim 9, Brandl teaches:

The method of claim 2 wherein the radio frequency signal is centered about a carrier frequency, and the frequency bands of interest include the carrier frequency and harmonics of the carrier

frequency (see Part III, equation 3.5, "...the received signal at the matched filter is the superposition of the transmitted chirp signal and the jammer...").

14. Regarding claim 10, Brandl teaches:

The method of claim 9 wherein the signal is bandwidth limited to a bandwidth B, and the frequency bands of interest are limited to the bandwidth B (see Part III, "...a B is the chirp bandwidth...").

15. Regarding claim 11, Brandl teaches:

A method of using a computer of modeling circuitry, comprising:

converting representations of first radio frequency signals to compressed vector based equivalent signals (see figure 5, "Chirp Compressor");

processing the compressed equivalent signals to form further compressed vector based equivalent signals to simulate operation of radio frequency circuitry on the first radio frequency signals (see Figure 5, "LP"); and

converting the further compressed equivalent signals to representations of second radio frequency signals resulting from operation of the circuitry on the first radio frequency signals (see "Decision Unit").

16. Regarding claim 12, Brandl teaches:

The method of modeling circuitry of claim 11 wherein the first radio signals are signals about a carrier frequency and harmonics and sub-harmonics of the carrier frequency (see figures 3 and 4, "frequency bands or sub bands distorted by the radio channel...") and the compressed equivalent signals are formed by restricting information in the compressed equivalent signals to signal

components about the carrier frequency and harmonics and sub-harmonics of the carrier frequency (see figure 5, “Chirp Compressor”,  $g(t)$ ).

17. Regarding claim 13, Brandl teaches:

The method of modeling circuitry of claim 12 wherein the first radio frequency signals are bandwidth limited and the compressed equivalent signals are bandwidth limited (see Part II, “...signals within its bandwidth are heavily suppressed...”).

18. Regarding claim 14, Brandl teaches:

A system for performing RF signal processing modeling, the system comprising:  
signal generator blocks forming compressed vector based equivalent signal representations of radio frequency signals (see figure 5, “PPM Coder”, “Chirp Compressor”);  
RF signal processing blocks processing compressed vector based equivalent signal representations to simulate RF signal processing (see figure 5, “Chirp Compressor”); and  
conversion blocks converting compressed vector based equivalent signals to RF signal representations of signals resulting from RF signal processing (see figure 5, equation 3.1).

19. Regarding claim 15, Brandl teaches:

The system of claim 14 wherein the RF signal processing blocks are formed using sub-blocks (see figure 5) comprising linear time invariant blocks (see Part II, “passive, linear, time invariant”) and non-linear time invariant blocks (see e.g. equation 3.1).

20. Regarding claim 16, Brandl teaches:

The method of claim 1 wherein forming a compressed vector based equivalent representation of the radio frequency signal comprises transforming signal components of the radio frequency bands of interest to an orthogonal plane (see Figure 8).

***Response to Amendments - Objections***

21. Applicant's amendments with respect to misspellings within the specification and claims 11-14 have been received. The objections to the specification and claims 11-14 have been withdrawn.

***Response to Arguments - 35 U.S.C §101***

22. Applicant's amendments and arguments with respect to claims 1-13 have been received, and the rejections are withdrawn. Applicant's amendments and arguments regarding claim 14 have been fully considered but they are not persuasive.

23. Claim 14 recites "blocks" for performing signal processing modeling. A person of ordinary skill in the art would interpret this claim in light of the disclosure as encompassing a software system, as there is no mention of any computer or hardware. The claim is therefore held as nonstatutory.

***Response to Arguments-35 U.S.C §102***

24. Applicant's arguments filed 6/14/2007 have been fully considered but they are not persuasive.

25. In particular, Applicant argues that:

"The chirp compressor of Brandl, however, appears to be a method of pulse compression, which increases the frequency of a pulse, as opposed to, for example, data compression which reduces the number of data points used."

26. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., data



compression) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Examiner notes that not only is the argument of data compression not claimed, it is not located within the present disclosure, and is provided for merely exemplary purposes.

27. Applicant also argues that Brandl teaches a frequency increase. However, Applicant has provided no support in Brandl for this conclusion.

28. Applicant openly admits that Brandl discloses a method of pulse compression. Brandl discloses the concept of "chirping" which is well known in the art as being a technique of pulse compression. Figure 3 demonstrates compression of an input chirp signal, not increasing of frequency. Figure 3a shows the total input spectrum without compression and 3b shows the spectrum with compression. The function  $g(t)$  is the resulting vector based equivalent, as it is an object defined by both magnitude and direction. Thus, Brandl discloses a compressed vector based equivalent of a signal.

### ***Conclusion***

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

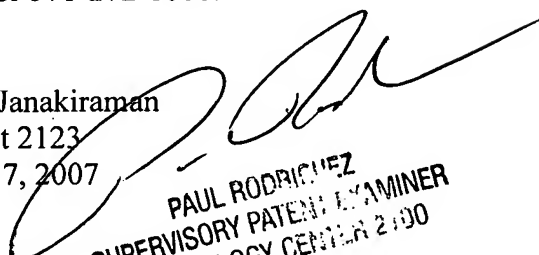
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nithya Janakiraman whose telephone number is 571-270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nithya Janakiraman  
Art Unit 2123  
August 7, 2007

  
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